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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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06/02/2005

Dieter Kassel

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10/12/2007

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EXAMINER

ZHU, WEIPING

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

10/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,669	KASSEL ET AL.	
	Examiner	Art Unit	
	Weiping Zhu	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/26/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-5 are currently under examination.

Applicant's election with traverse of Invention I, Claims 1-5 in the reply filed on July 26, 2007 is acknowledged. The traversal is on the ground(s) that the non-elected method claims 6-12, wherein the claims 6, 7, 9 and 12 have been amended in applicant's amendment filed on July 26, 2007, are linked to the composition claims 1-5 by the claimed common technical feature of the two-phase hard metal substrate body, which is not shown in the prior art. Chen et al. (DE 19845376). This is not found persuasive. As stated in the Office action dated May 15, 2007, the common technical feature in all groups is the hard metal substrate. This element cannot be a special technical feature under PCT Rules 13.2 because the element is shown in the prior art. The applicant argues that the hard metal body of Chen et al. ('376) contains a 3rd phase of carbide, nitride and/or carbonitride. However, the claimed two-phase (i.e. WC and the binder) hard metal substrate body also contains an enrichment of nitride or carbonitride of the metal dopants in the boundary zone close to the surface as disclosed in the instant claim 5; and a layer comprising carbide, nitride and/or carbonitride is applied to the substrate body surface as claimed in the instant claim 4. These carbide, nitride and/or carbonitride obviously form the 3rd phase in the claimed hard metal substrate body, which is substantially identical to the hard metal body as disclosed by Chen et al. ('376) (abstract). Therefore, Inventions I-II lack the same or corresponding special technical features and unity of the invention is lacking.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 1 of claims 1-5, the phrase "two-phase" renders the claims 1-5 indefinite, because a 3rd phase is present in the claimed hard metal substrate body both before and after a top layer of a carbide, nitride and/or carbonitride is applied to the body (see the discussion above).

In lines 7 and 8 of claim 1, the phrase "the hard metal" renders the claim 1 indefinite with no antecedent basis.

In lines 10 and 11 of claim 1, the phrase "falls from up to 1 μm , preferably up to 0.5 μm " renders the claim 1 indefinite, because it is not clear from which point the up to 1 μm , preferably up to 0.5 μm is measured.

In lines 3 and 4 of claim 3, the phrases "WC fine hard metal" and "WC ultrafine grain hard metal" render the claim 3 indefinite, because WC is a ceramic not a metal.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 6,110,603).

With respect to claim 1, Chen et al. (603) disclose a hard metal body comprises by weight 10-90% of WC, 3-25% of a binder comprising Ni, Fe and Co and up to 2% of Cr (i.e. the claimed dopant), wherein the surface of the hard metal body is substantially binder-free (col. 2, line 63 to col. 4, line 37). The contents of the binder and the dopant of Chen et al. (603) overlap the claimed contents. A prima facie case of obviousness exists. See MPEP 2144.05 I.

Chen et al. (603) do not specify the proportion of a cubic phase as claimed. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the volume percent range of a cubic phase of Chen et al. (603) would be substantially identical to the claimed range, because the content of the cubic phase forming elements (e.g. Cr) is substantially identical to the claimed content.

With respect to claim 2, Chen et al. (603) disclose that the concentration of the binder phase falls gradually toward the body surface and the concentration of the dopant gradually increases toward the body surface (Figures 1 and 3).

With respect to claim 3, Chen et al. (603) do not disclose the claimed features. However, it has been well held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical process, a prima facie case of either anticipation or obviousness

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has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the instant case, the claimed and Chen et al. (603)'s hard metal body are identical or substantially identical in structure or composition and are produced by identical or substantially identical processes, therefore a prima facie case of obviousness exists. The same grain sizes of WC containing the same element as dopant would be expected in the hard metal body of Chen et al. (603) as in the claimed hard metal body.

With respect to claim 4, Chen et al. (603) disclose a surface layer of the hard metal body having a substantially binder-free-carbonitride phase of Group IVa, Va or VIa of the Periodic Table (col. 2, line 63 to col. 3, line 17).

With respect to claim 5, Chen et al. (603) disclose that in the surface region of the hard metal body, there is an enrichment with nitride or carbonitride of the metal dopant (col. 3, lines 11-43).

Conclusion

4. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

10/2/2007

ROY KONG
SUPERVISORY P
FEB 12 2007